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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,305	01/13/2004	Bruce M. Harper	004085.P035	5362

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EXAMINER

WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT	PAPER NUMBER
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1732

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/758,305

Applicant(s)

HARPER ET AL.

Examiner

Jeff Wollschlager

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election of Group II, claims 14-24, in the reply filed on November 20, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Further, applicant has canceled non-elected claims 1-13 and 25-33.

Drawings

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Additionally, new corrected drawings in compliance with 37 CFR 1.121(d) are required in this application for Figures 1, 2A, 2B, 2C, 3A, 3B, 5A and 5B, because the application admits of illustration by clear drawings to facilitate understanding of the invention. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer

prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Elements (432) and (422) are not shown in the drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 15 is objected to for the following informalities: the recitation, "a first port to distribute around a manifold of a pickup head" is cumbersome. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 14, the limitation "nest" is unclear as to its limiting effect. As to claim 15, the limitation, "a pickup head that receives the disk" although described as further limiting the positioning step is unclear whether the pickup head that "receives the disk" is the nest. As to claim 16, the limiting effect of "creating a low gas pressure and a positive gas pressure" is unclear. As to claim 17, the recitation of a "second port" is unclear because it is unclear whether the second port is part of the pickup head. As to claims 20 and 21, the limitation "elevated temperature" and "embossing temperature" are unclear as to their limiting effect. It is noted that elevated temperature is a relative term. Further, the examiner notes that the limiting effect of an embossing temperature, when no embossing is taking place is unclear as to its limiting effect. As to claim 24, the limiting effect of "an outer dimension" is unclear.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 14-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Thomas et al. (U.S. Patent 5,322,987).

Regarding claim 14, Thomas et al. disclose a method of etching optical servo tracks on a magnetic disk wherein a disk (11) containing a hub (12) with holes (13) and (14) is positioned over a nest/spindle wherein bursts of compressed gas is applied to in such a manner as to rotate the disk and lift the disk off the spindle to form a gas boundary layer to protect it from scratching (col. 3, lines 16-37; col. 4, lines 11-62; Figures 1B, 1C and 2). The examiner notes that by directing sufficient gas pressure to lift the disk (11), comprising the thicker hub (12) section to form a gas boundary layer such that it is not scratched by pin (17), at least a portion of gas flows into the inner diameter holes (Figures 1C and 2).

As to claims 15-18, Thomas et al. disclose that a plurality of gas jets (18) are employed to pickup the disk (Figure 2). The examiner notes that a Bernoulli effect is created to lift the disk.

As to claim 19, Thomas et al. disclose the disk is centered (col. 4, lines 23-25).

As to claims 20 and 21, the gas employed by Thomas et al. is necessarily at an elevated, embossing temperature as the limitations are currently understood.

Claims 14-16, 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Tzur et al. (U.S. Patent 5,293,287).

Regarding claim 14, Tzur et al. employ a method of stabilizing a flexible optical medium wherein disks (20) and (22) with holes (70) are positioned within a disk drive/nest and wherein the disks are guided into position by directing gas into the inner diameter holes (Figure 10; col. 1, lines 16-27; col. 5, lines 17-37; col. 6, lines 2-13).

As to claims 15, 16, and 18, Tzur et al. create a Bernoulli effect to lift the disks (col. 5, lines 17-37 and col. 6, lines 2-13).

As to claim 19, the hole (46) in the center of the disk is utilized to center the disk upon a drive spindle.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 14-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (U.S. Patent Application Publication 2002/0025408) in view of Granneman et al. (WO 98/01890) and Wu et al. (J. Vac. Sci. Technol. B Vol. 16, No. 6, Nov/Dec 1998, pages 3825-3829).

Regarding claim 14, Davis teaches a method of nano-imprinting an embossable film upon a disk, such as optical, magnetic and magneto-optic disks by heating the disk prior to placing/positioning the disk in the mold/nest (Abstract; paragraphs [0004-0006; 0072-0079]. Davis does not expressly state the disk has a hole defined by an inner diameter edge nor that gas is directed into an inner diameter of the hole.

However, Grannemen et al. disclose a method and apparatus for contactless preheating of a substrate by directing gas at the substrate to both heat the substrate and to support it within the apparatus (Abstract; Figures 1 and 2) and Wu et al. demonstrate that magnetic disks, suitable for nanoimprint lithography contain a hole as claimed (Figure 1 and Figure 2).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to preheat the disk disclosed by Davis, containing a hole as evidenced by Wu et al., with the method disclosed by Grannemen et al. for the purpose of preheating the disk for the purpose as disclosed by Grannemen et al. of uniformly heating the disk with no thermal stresses being produced (page 7, lines 37-38). The examiner notes that by placing the disk disclosed by Davis in the

apparatus disclosed by Grannemen et al., gas is directed into the inner diameter hole of the disk.

As to claims 15-18 and 23, Grannemen et al. employ a modified Bernoulli head arrangement above and below the substrate to allow the substrate to be heated uniformly without being contacted by the apparatus. The method employs a plurality of gas jets directed toward the surface of the disk, including the hole within the disk, and suspends the disk into close proximity of the manifold (Figures 1 and 2).

As to claims 19, Davis discloses placing the disk within a mold. This is understood to center the disk within the nest/mold. Alternatively, one having ordinary skill would have been motivated to place the disk within a centered position of the mold to ensure the stamping procedure provided uniform results.

As to claims 20 and 21, Davis discloses the disk is preheated to an embossing temperature (Abstract; paragraph [0072-0079]).

As to claim 22, Davis discloses the disk is nano-imprinted (paragraphs [0072-0079]).

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (U.S. Patent Application Publication 2002/0025408) in view of Granneman et al. (WO 98/01890) and Wu et al. (J. Vac. Sci. Technol. B Vol. 16, No. 6, Nov/Dec 1998, pages 3825-3829), as applied to claims 14-23 above, and further in view Bailey et al. (U.S. Patent 6,696,220).

As to claim 24, the combined references teach method of claim 19 as discussed above, but do not expressly disclose further positioning/centering by engaging the outer dimension of the disk with a plurality of rods coupled to actuators. However, Bailey et al. disclose an analogous method of centering a substrate with a plurality of rods coupled to actuators (e.g. piezo actuators; Figure 51 (5103); Figure 38; col. 25, lines 17-37).

Therefore it would have been *prima facie* obvious to employ the piezo actuators disclosed by Bailey et al. while practicing the method disclosed by Davis for the purpose of providing fine adjustment and positioning of the disk prior to performing the nano-imprinting step as is routinely practiced in the art.

Conclusion

All claims are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Wollschlager whose telephone number is 571-272-8937. The examiner can normally be reached on Monday - Thursday 7:00 - 4:45, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JW

Jeff Wollschlager
Examiner
Art Unit 1732

February 5, 2007

ce f
CHRISTINA JOHNSON
SUPERVISORY PATENT EXAMINER
2/10/07